European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC)

Fourth Report by the United Kingdom under Article 17

on the implementation of the Directive
from January 2013 to December 2018

Supporting documentation for the
conservation status assessment for the habitat:

H1310 - *Salicornia* and other annuals colonising mud and sand

NORTHERN IRELAND

IMPORTANT NOTE - PLEASE READ

- The information in this document is a country-level contribution to the UK Report on the conservation status of this habitat, submitted to the European Commission as part of the 2019 UK Reporting under Article 17 of the EU Habitats Directive.
- The 2019 Article 17 UK Approach document provides details on how this supporting information was used to produce the UK Report.
- The UK Report on the conservation status of this habitat is provided in a separate document.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Explanatory notes (where provided) by the country are included at the end. These provide an audit trail of relevant supporting information.
- Some of the reporting fields have been left blank because either: (i) there was insufficient information to complete the field; (ii) completion of the field was not obligatory; and/or (iii) the field was only relevant at UK-level (sections 10 Future prospects and 11 Conclusions).
- For technical reasons, the country-level future trends for Range, Area covered by habitat and Structure and functions are only available in a separate spreadsheet that contains all the country-level supporting information.
- The country-level reporting information for all habitats and species is also available in spreadsheet format.

Visit the JNCC website, https://jncc.gov.uk/article17, for further information on UK Article 17 reporting.

Report on the main results of the surveillance under Article 17 for Annex I habitat types (Annex D)

NATIONAL LEVEL

1. General information

1.1 Member State	**UK (Northern Ireland information only)**
1.2 Habitat code	**1310 - Salicornia and other annuals colonizing mud and sand**

2. Maps

2.1 Year or period	2013-2018
2.3 Distribution map	Yes
2.3 Distribution map Method used	Complete survey or a statistically robust estimate
2.4 Additional maps	No

BIOGEOGRAPHICAL LEVEL

3. Biogeographical and marine regions

3.1 Biogeographical or marine region where the habitat occurs	**Atlantic (ATL)**
3.2 Sources of information	Cooper, E.A., Crawford, I., Malloch, A.J.C. & Rodwell, J.S. (1992). Coastal vegetation survey of Northern Ireland. Lancaster, Lancaster University Environment and Heritage Service, Belfast. Northern Ireland Habitat Action Plan - Coastal Saltmarsh - March 2005 JNCC (1997). Coasts and seas of the United Kingdom, Region 17 Northern Ireland. Coastal Directories Series NIEA. Internal Condition Assessment Reports (various sites and years). Rodwell, J.S. (2000). British Plant Communities. Volume 5, Maritime Communities and Vegetation of Open habitats. Cambridge: Cambridge University Press Rodwell, J.S., Dring, J.C., Averis, A.B.V., Proctor, M.C.F., Malloch, A.J.C., Schaminee, J.H.J & Dargie, T.C.D. 1998. Review of Coverage of the National Vegetation Classification. Lancaster: Unit of Vegetation Science report to the Joint Nature Conservation Committee. Boorman, L. 2003. Saltmarsh Review. An overview of coastal saltmarsh, their dynamic and sensitivity characteristics for conservation and management. Report No. 334. Joint Nature Conservation Committee, Peterborough. Baxter, J. & Boaden, P. 1990 Coastal resources of the Irish Sea - Northern Ireland. In Irish Sea Study Group, The Irish Sea - an environmental review. Part 1: nature conservation, pp. 83-102. Liverpool University Press, Liverpool Davy, A. J., Bishop, G. F. and Costa, C. S. B. (2001), Salicornia L. (Salicornia pusilla J. Woods, S. ramosissima J. Woods, S. europaea L., S. obscura P.W. Ball & Tutin, S. nitens P.W. Ball & Tutin, S. fragilis P.W. Ball & Tutin and S. dolichostachya Moss). Journal of Ecology, 89: 681-707.

4. Range

4.1 Surface area (in km²)		
4.2 Short-term trend Period		
4.3 Short-term trend Direction	Stable (0)	
4.4 Short-term trend Magnitude	a) Minimum	b) Maximum
4.5 Short-term trend Method used		
4.6 Long-term trend Period		

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4.7 Long-term trend Direction 4.8 Long-term trend Magnitude	a) Minimum	b) Maximum	
4.9 Long-term trend Method used			
4.10 Favourable reference range	a) Area (km²) b) Operator c) Unknown No d) Method		
4.11 Change and reason for change in surface area of range	No change The change is mainly due to:		
4.12 Additional information			

5. Area covered by habitat

5.1 Year or period	2013-2018		
5.2 Surface area (in km²)	a) Minimum	b) Maximum	c) Best single value 0.1
5.3 Type of estimate	Best estimate		
5.4 Surface area Method used	Complete survey or a statistically robust estimate		
5.5 Short-term trend Period	2007-2018		
5.6 Short-term trend Direction	Stable (0)		
5.7 Short-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.8 Short-term trend Method used	Complete survey or a statistically robust estimate		
5.9 Long-term trend Period	1994-2018		
5.10 Long-term trend Direction	Stable (0)		
5.11 Long-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.12 Long-term trend Method used			
5.13 Favourable reference area	a) Area (km²) b) Operator c) Unknown No d) Method		
5.14 Change and reason for change in surface area of range	No change The change is mainly due to:		
5.15 Additional information			

6. Structure and functions

6.1 Condition of habitat	a) Area in good condition (km²)	Minimum 0	Maximum 0
	b) Area in not-good condition (km²)	Minimum 0.1	Maximum 0.1
	c) Area where condition is not known (km²)	Minimum 0	Maximum 0
6.2 Condition of habitat Method used	Complete survey or a statistically robust estimate		
6.3 Short-term trend of habitat area in good condition Period	2013-2018		

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6.4 Short-term trend of habitat area in good condition Direction	Stable (0)
6.5 Short-term trend of habitat area in good condition Method used	Complete survey or a statistically robust estimate
6.6 Typical species	Has the list of typical species changed in comparison to the previous reporting period? No
6.7 Typical species Method used	
6.8 Additional information	

7. Main pressures and threats

7.1 Characterisation of pressures/threats

Pressure	Ranking
Sea-level and wave exposure changes due to climate change (N04)	H
Other invasive alien species (other then species of Union concern) (I02)	H
Modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defences or coastal protection works and infrastructures) (F08)	H
Mixed source marine water pollution (marine and coastal) (J02)	M

Threat	Ranking
Sea-level and wave exposure changes due to climate change (N04)	H
Other invasive alien species (other then species of Union concern) (I02)	H
Modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defences or coastal protection works and infrastructures) (F08)	H
Mixed source marine water pollution (marine and coastal) (J02)	M

7.2 Sources of information	
7.3 Additional information	

8. Conservation measures

8.1 Status of measures	a) Are measures needed?	Yes
	b) Indicate the status of measures	Measures identified and taken
8.2 Main purpose of the measures taken	Maintain the current range, population and/or habitat for the species	
8.3 Location of the measures taken	Both inside and outside Natura 2000	
8.4 Response to the measures	Medium-term results (within the next two reporting periods, 2019-2030)	

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8.5 List of main conservation measures

Implement climate change adaptation measures (CN02)
Manage changes in hydrological and coastal systems and regimes for construction and development (CF10)
Management, control or eradication of other invasive alien species (CI03)
Reduce/eliminate marine pollution from agricultural activities (CA13)

8.6 Additional information

9. Future prospects

9.1 Future prospects of parameters

a) Range
b) Area
c) Structure and functions

9.2 Additional information

10. Conclusions

10.1. Range

10.2. Area

10.3. Specific structure and functions (incl. typical species)

10.4. Future prospects

10.5 Overall assessment of Conservation Status

10.6 Overall trend in Conservation Status

10.7 Change and reasons for change in conservation status and conservation status trend

a) Overall assessment of conservation status

No change

The change is mainly due to:

b) Overall trend in conservation status

No change

The change is mainly due to:

10.8 Additional information

11. Natura 2000 (pSCIs, SCIs, SACs) coverage for Annex I habitat types

11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network (in km² in biogeographical/ marine region)

a) Minimum
b) Maximum
c) Best single value 0.1

11.2 Type of estimate

Best estimate

11.3 Surface area of the habitat type inside the network Method used

Complete survey or a statistically robust estimate

11.4 Short-term trend of habitat area in good condition within the network Direction

Stable (0)

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11.5 Short-term trend of habitat area in good condition within network Method used	Complete survey or a statistically robust estimate
11.6 Additional information	

12. Complementary information

12.1 Justification of % thresholds for trends	
12.2 Other relevant information	

Distribution Map

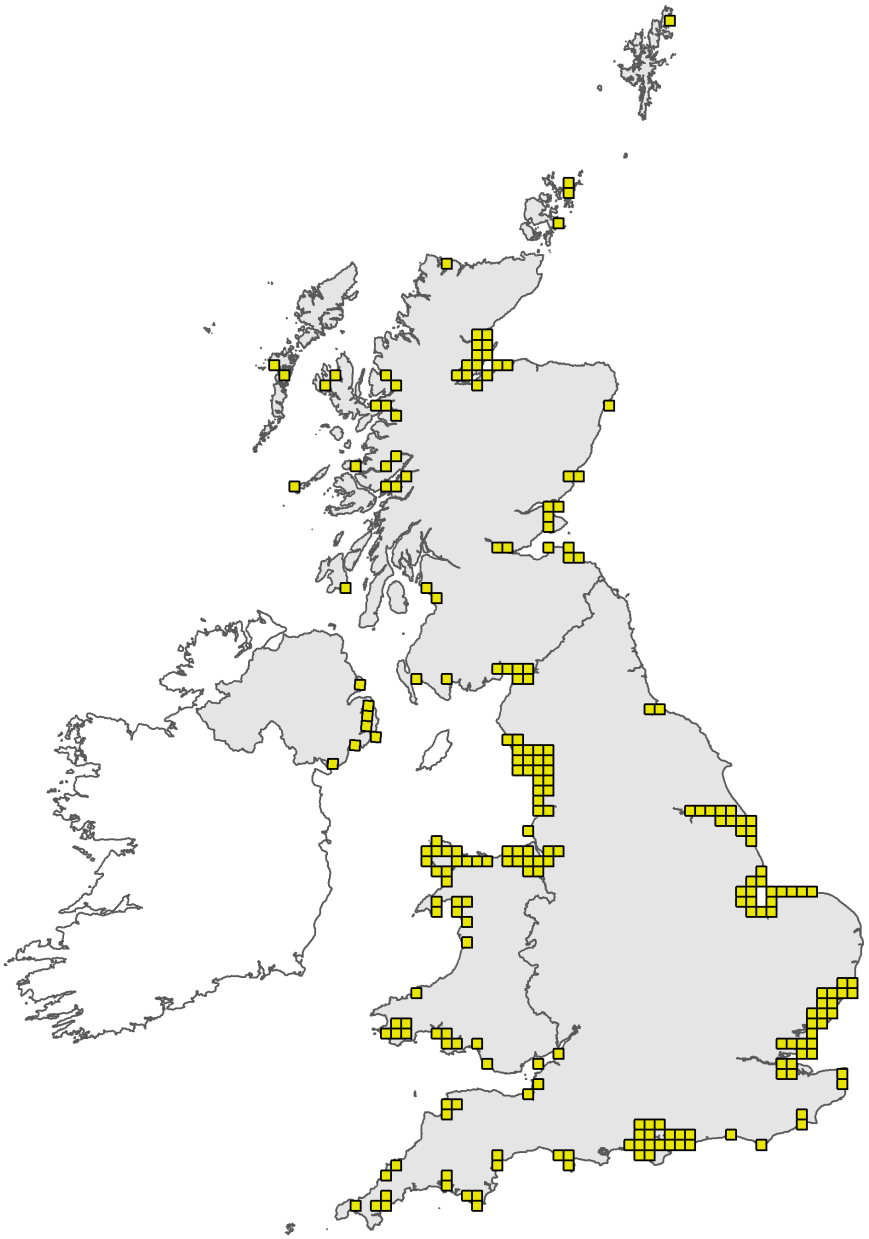

Figure 1: UK distribution map for H1310 - *Salicornia* and other annuals colonising mud and sand. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The 10km grid square distribution map is based on available habitat records which are considered to be representative of the distribution within the current reporting period. For further details see the 2019 Article17 UK Approach document.

Range Map

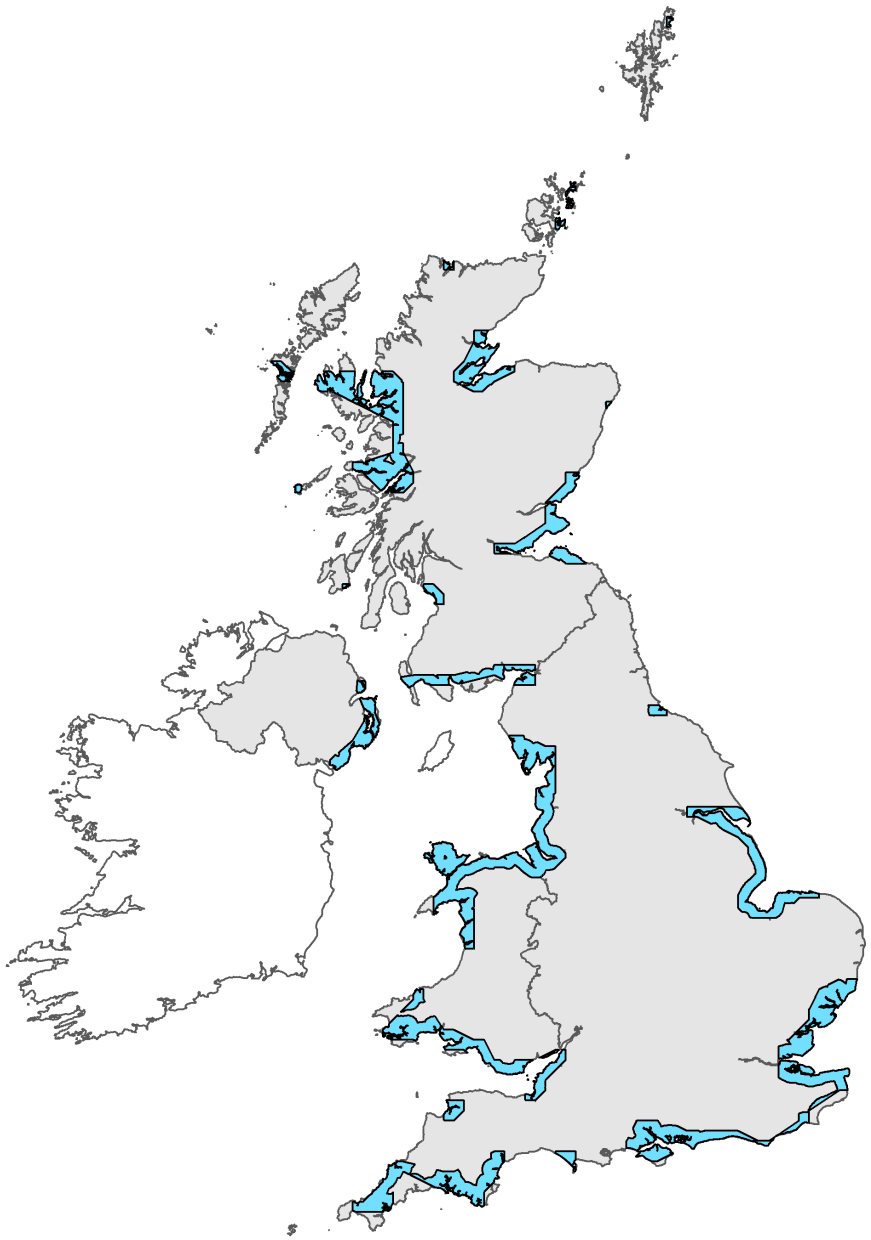

Figure 2: UK range map for H1310 - *Salicornia* and other annuals colonising mud and sand. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The range map has been produced by applying a bespoke range mapping tool for Article 17 reporting (produced by JNCC) to the 10km grid square distribution map presented in Figure 1. The alpha value for this habitat was 25km. For further details see the 2019 Article 17 UK Approach document.

Explanatory Notes

Habitat code: 1310

Field label	Note
2.2 Distribution map	This is a widespread habitat in the UK with over 2,300 ha of this pioneer vegetation type. The vegetation comprises a very small number of species and is dominated by open stands of glasswort Salicornia spp. (SM8) or annual sea-blite Suaeda maritima (NVC SM9). The habitat occupies a relatively small area in NI (probably because of a lack of sediment supply for saltmarsh development). Strangford Lough has the most extensive stands of this habitat (e.g. Dorn and other localities), although it occurs sporadically around the coast, usually in association with saltmarsh. The NI Coastal Survey (Cooper, et al 1992) recorded SM8 from 3 sites - 2 within Strangford Lough and 1 from Carlingford Lough; SM9 was recorded from 4 sites - again 2 sites within Strangford Lough, with 1 each at Ballyquintin Point and Murlough. As species, both Salicornia and Suaeda are generally found to the south of NI, and occurrences north of Larne Lough on the Antrim coast are scarce. As a result, the community has not been recorded in the northern half of NI.
2.3 Distribution map; Method used	Map based upon NI Coastal Survey (Cooper et al, 1992) with additional fieldwork by NIEA staff at other sites. All known stands of the habitat were visited by NIEA staff during the reporting period, so coverage of the habitat has been good.

Habitat code: 1310 Region code: ATL

Field label	Note
4.1 Surface area	No loss in range recorded over the short term (since condition assessment process introduced in 2002). No loss in range recorded over the longer term (since NI Coastal Survey 1992)
4.5 Short term trend; Method used	Based upon regular condition monitoring of protected coastal sites. These cover the only known locations for the habitat in NI.
5.2 Surface area	The extent figure for NI was derived primarily from the NI Coastal Survey (Cooper et al, 1992), where the habitat was mapped to NVC standard.
6.1 Condition of habitat	Condition data for protected sites are indicative of the condition of the habitat across NI, as virtually all known stands of the habitat occur on SACs and ASSIs. The resource is reported as not good. The major issue for the habitat is invasion of the upper mudflats that it occurs in by non-native invasive Spartina anglica.
6.2 Condition of habitat; Method used	Data taken from the most recent Common Standards Monitoring of Strangford Lough and Murlough SACs and Outer Ards, Carlingford Lough and Larne Lough ASSIs.

7.1 Characterisation of pressures/ threats	This is a habitat that does not generally require active management. The major threat to the habitat is the invasion of its niche in the upper mudflats by non-native Spartina anglica. In addition, the habitat depends upon natural processes of sediment movement so any building or construction that interferes with these natural processes (e.g. breakwaters, coastal protection measures, etc) - even some distance away - may threaten the habitat. Climate change and particularly the impacts of sea-level rise and increased storminess, will inevitably have some effects on the habitat, through mobilising and re-distributing sediment supplies. It is difficult to predict what the long-term effects of this will be. Although it might be expected that the habitat would have a low sensitivity to aerial Nitrogen deposition, the critical load range for H1310 habitat is listed in the APIS website as 20-30 kg N /ha/yr. With an average predicted deposition of 16.3 kg N/ha/yr, Strangford Lough (the main location for this habitat) is below the lower threshold for this habitat. Nevertheless, it will be important to monitor this closely. Increased nutrients from aerial deposition and other sources can lead to an increase in cover of green algae such as Enteromorpha spp., and these may in turn suppress Salicornia establishment. Therefore listed as a medium pressure/threat.
7.2 Sources of information	Threats and pressures assessed from the most recent Common Standards Monitoring of the habitat at protected sites (SACs and ASSIs), plus judgement on future trends.
8.1 Status of measures	Recent condition assessments suggest that the habitat is in unfavourable condition. This is largely due to invasion by Spartina anglica. Measures to control Spartina have been in place for well over 20 years, but have been hampered by the difficulties of working in the intertidal environment. Although these measures have reduced the rate of spread of Spartina, it still remains a major threat to the habitat. In addition, the habitat is threatened by coastal squeeze - i.e. rising sea-levels coupled with limited ability to colonise beyond its current range. Managed coastal retreat in Strangford Lough (Anne's Point) has been successful in allowing the habitat to establish in newly flooded land.
8.2 Main purpose of the measures taken	Measures aimed at reducing Spartina encroachment and allowing (where possible) the habitat to establish in areas of managed coastal retreat. Hence this is reported as Restore the structure and functions, including the status of typical species (related to 'Specific structure and functions') - rather than maintain.
8.3 Location of the measures taken	Spartina control measures taken at a number of sites (some for closely linked habitat H1330 Atlantic Salt Meadows) - i.e. Carlingford Lough ASSI/SPA, Murlough SAC, Strangford Lough SAC and Lough Foyle ASSI/SPA
8.4 Response to the measures	Indications from monitoring suggest that some of the measures are proving successful, but Spartina management needs to be intensified.
10.1 Range	There is no evidence to suggest that the habitat occurred formerly elsewhere in NI, other than its current distribution. Therefore current range occupied by the habitat in NI judged favourable.
10.2 Area	Although there may have been historical losses due to the introduction of Spartina anglica, there is no evidence of any recent loss in extent (since 1992) from any of the known sites for the habitat. Therefore current area occupied by the habitat in NI judged favourable.
10.3 Specific structure and functions	The resource is reported as not good for structure and function. The bulk of the resource is unfavourable. Hence an Unfavourable Bad assessment.
10.4 Future prospects	Structure and function of the habitat are bad and current Spartina control measures are not making a significant difference. Even without this, future prospects would be uncertain in the light of potential impacts of sea level rise and climate change. Hence Unfavourable Bad.

10.5 Overall assessment of Conservation Status	Range and extent are stable and favourable; structure and function are bad. Future prospects are bad, with climate change impacts currently unpredictable and Spartina control measures not producing any significant improvement. Hence an overall unfavourable bad assessment.
11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network	The bulk of the habitat in NI is present at Strangford Lough SAC.
11.3 Surface area of the habitat type inside the network; Method used	Within the SAC network, most of the habitat has been mapped to NVC standard and CSM is undertaken on a regular basis.
11.5 Short term trend of habitat area in good condition within the network; Method used	Conclusion based upon recent condition assessment data. The habitat has been reported as being in unfavourable condition.